

Bureau of Construction Codes and Fire Safety
2003 Michigan Uniform Energy Code

| RULE | PROPOSED 2003 SECTION | CURRENT MICHIGAN RULE TITLE | NEW SECTION TITLE | ACTION |
|-------------|----------------------------------|--|--------------------------|--|
| R 40831059 | --- | --- | Applicable code | <p>Add new rule to read as follows: R 408.31059 Applicable code. Rule 1059. These rules govern the energy efficiency for the design and construction of residential buildings. These rules will be included in Chapter 11 of the 2003 Michigan Residential Code.</p> |
| R 408.31060 | N1101.1 | --- | Scope | <p>Add R 408.31060 to read as follows: R 408.31060 General. Rule 1060. N1101.1 Scope. This chapter sets forth the energy efficiency standards for detached one- and two-family dwellings and multiple-single family dwellings. One- and two-family dwellings and multiple-single family dwellings regulated by this code shall be designed and constructed as regulated by this chapter of the code for energy efficiency. Exceptions: 1. A detached one- and two-family dwelling or portion thereof that has an intended maximum rate of energy usage less than 3.4 Btu/h per square foot of floor space for all purposes. 2. Portions of a detached one- and two-family dwelling that is not heated or mechanically cooled. 3. An existing detached one- and two-family dwelling. 4. An alteration of an existing detached one- and two-family dwelling. 5. A detached one- and two-family dwelling that is moved into or within a jurisdiction. A home manufactured pursuant to the Michigan Premanufactured Unit Rules that is shipped for initial installation or initial assembly and installation on a building site shall not be considered a moved building.</p> |
| | N1101.2 | --- | Compliance | <p>Amend text to read as follows: N1101.2 Compliance. Compliance with this chapter shall be demonstrated by meeting the requirements of sections N1102.1 through N1103.3 or sections 1104.1 through 1106.2. The permit applicant shall select the method used to achieve compliance with the provisions of this code. Exceptions: 1. Detached one- and two-family dwellings designed and constructed in conformance with the provisions of the International Energy Code shall be deemed in compliance with the provisions of this chapter. 2. Detached one- and two-family dwellings designed, constructed and</p> |

Bureau of Construction Codes and Fire Safety
2003 Michigan Uniform Energy Code

| RULE | PROPOSED 2003 SECTION | CURRENT MICHIGAN RULE TITLE | NEW SECTION TITLE | ACTION |
|-------------|----------------------------------|--|--------------------------|--|
| | | | | certified under the USDOE Energy Star program shall be deemed in compliance with the provisions of this chapter. 3. Detached one- and two-family dwellings designed and constructed in conformance with the National Home Energy Rating Guidelines with a score of 83 or better. A certificate indicating the score prepared by an accredited agency shall be filed with the code official. |
| R 408.31061 | N1101.3 | Definitions; A to C | Definitions | Amend R 408.31061 to delete definitions and add the following language: R 408.31061. Definitions. Rule 1061. Definitions. Definitions shall have the meanings as defined in the code or as the context implies when not defined. |
| R 408.31062 | --- | Definitions; E to G | --- | Rescind R 408.31062. Note: Definition language is included in R 408.31061. |
| R 408.31063 | --- | Definitions; H to M | --- | Rescind R 408.31063. Note: Definition language is included in R 408.31061. |
| R 408.31064 | --- | Definitions; O to R | --- | Rescind R 408.31064. Note: Definition language is included in R 408.310613 |
| R 408.31065 | --- | Definitions; S to T | --- | Rescind R 408.31065. Note: Definition language is included in R 408.31061. |
| R 408.31066 | --- | Definitions; U to Z | --- | Rescind R 408.31066. Note: Definition language is included in R 408.31061. Zones are defined in R 408.31069. |
| R 408.31069 | N1101.4 | --- | Zones | Add R 408.31069 to read as follows: R 408.31069 Zones Rule 1069. N1101.4 Zones. One-and two-family dwellings located in the following counties shall be constructed in accordance with the respective requirements for zones identified in table N1101.4. Table N1101.4 (see attached). |
| R 408.31070 | N1101.5 | Code title, intent, compliance, and exemption; adoption of standards by reference. | Submission of Documents | Amend R 408.31070 to read as follows: R 408.31070. Submission of documents. Rule 1070. N1101.5 Submission of Documents. Documents submitted for compliance with the provisions of this chapter of the code shall be acceptable when submitted by any of the following: a. A person licensed under Article 24 of 1980 PA 299. b. A homeowner |

Bureau of Construction Codes and Fire Safety
2003 Michigan Uniform Energy Code

| RULE | PROPOSED 2003 SECTION | CURRENT MICHIGAN RULE TITLE | NEW SECTION TITLE | ACTION |
|-------------|----------------------------------|---|---|---|
| | | | | c. A person licensed under the Michigan occupational code as an architect or professional engineer. |
| R 408.31071 | N1101.6 | Materials and equipment; identification; insulation installation, maintenance, and labeling; fenestration rating, certification, and labeling | Materials and equipment | Amend R 408.31071 to read as follows: R 408.31071 Materials and equipment. Rule 1071. N1101.6 Materials and equipment. Materials and equipment shall be identified as provided by N1101.6.1 through N1101.6.1.3. |
| | N1101.6.1 | | Building Insulation | N1101.6.1 Building insulation. Each piece of building insulation shall be identified in a manner that will allow a determination of compliance with the provisions of the code. Materials shall be installed in accordance with the manufacturer's installation instructions. |
| | N1101.6.1.1 | | Roof/ceiling, floor and wall insulation | N1101.6.1.1 Roof/ceiling, floor and wall insulation. Roof/ceiling, floor and wall insulation products shall be installed so that the manufacturer's thermal resistance rating (R-value) identification mark is readily visible for inspection. |
| | N1101.6.1.2 | | Blown-in and spray insulation | N1101.6.1.2 Blown-in and spray insulation. For blown or sprayed insulation, the insulation installer shall provide to the code official a signed and dated certification for the insulation installed in each element of the building envelope. The certification shall list the type of insulation, manufacturer, and R-value. The certification shall list all of the following information: a. The initial insulation thickness b. The settled thickness c. The coverage area d. The number of bags installed. |
| | 1101.6.1.3 | | Loose fill insulation | N1101.6.1.3 Loose fill insulation. Loose fill insulation shall be installed at a uniform depth throughout the open area of an attic with the minimum number of bags per 1000 square feet as specified by the manufacturer to achieve the designated thermal resistance rating. At least five depth markers shall be installed in evenly spaced locations throughout each separate attic area. One depth marker shall be installed adjacent to an attic access location. |

Bureau of Construction Codes and Fire Safety
2003 Michigan Uniform Energy Code

| RULE | PROPOSED 2003 SECTION | CURRENT MICHIGAN RULE TITLE | NEW SECTION TITLE | ACTION |
|-------------|----------------------------------|--|---|--|
| | N1101.6.2 | | Fenestration | N1101.3.2 Fenestration. Fenestration products shall be certified under NFRC 100, as listed in chapter 43, by an accredited, independent laboratory, and labeled and certified by the manufacturer in accordance with the requirements of this section Exception: Computer simulations by independent NFRC certified laboratories or approval under section 21 of 1972 PA 230, MCL 125.1521 are deemed to comply with this section. |
| | N1101.6.2.1 | | Air leakage | N1101.3.2.1 Air leakage. The amount of air leakage of premanufactured fenestration products, including windows, doors, and skylights in locations separating outdoor ambient conditions or exempted portions of the building from interior spaces that are heated or mechanically cooled, shall be labeled or certified by the manufacturer not to be more than .37 cubic feet per minute (CFM) of air leakage per lineal foot of sash crack perimeter at an air pressure of 1.56 pounds per square foot (psf) (25 mph) using ASTM-E283 procedures, as listed in chapter 43. Exception: Custom fenestration products shall be limited to 4 square feet in area. |
| | N1101.6.2.2 | | R-values of fenestration products | N1101.3.2.2 R-values of fenestration products. Windows, doors and skylights shall be rated for thermal resistance based on the entire fenestration unit. The R values of all fenestration products in a building shall meet the requirements set forth in Table N1102.4. Table N 1102.4 (see attached). |
| R 408.31072 | N1102.1 | Alternate materials, method of construction, design, or insulating systems | Prescriptive approach to building envelope design | Amend R 408.31072 to read as follows: R 408.31072 Prescriptive compliance method. Rule 1072. N1102.1 Prescriptive approach to building envelope design. Detached one- and two-family dwellings that are heated or mechanically cooled shall be designed and constructed in accordance with the provisions of this section and sections 1102.2 through 1103.3. |

Bureau of Construction Codes and Fire Safety
2003 Michigan Uniform Energy Code

| RULE | PROPOSED 2003 SECTION | CURRENT MICHIGAN RULE TITLE | NEW SECTION TITLE | ACTION |
|-------------|----------------------------------|---|--|--|
| R 408.31073 | N1102.2 | Residential building design by prescriptive approach; building envelope requirements | Combination of insulating materials | Amend R 408.31073 to read as follows: R 408.31073 Insulating materials; protection against deterioration. Rule 1073 N1102.1.1 Combination of insulating materials. Where a combination of insulating materials is used, information documenting the thermal resistance of the combination of materials shall be submitted to the code official indicating the total thermal resistance value of the combined materials. |
| | N1102.3 | | Protection against deterioration | N1102.1.2 Protection against deterioration. The use of combined insulation materials shall not create conditions that accelerate deterioration from moisture or condensation. All frame wall, floor and roof/ceiling assemblies shall be ventilated in accordance with the provisions of the code. Exception: Assemblies designed without ventilation, shall be provided with an approved vapor retarder with a minimum perm rating of 1 installed on the warm side of the thermal insulation. |
| R 408.31074 | N1102.4 | Building component criteria; walls | Building thermal values | Amend R 408.31074 to read as follows: N1102.4 Building Thermal Values. The thermal resistance value of exterior walls, including band joist areas, fenestration, roof/ceiling, floors over unconditioned spaces, crawl spaces, and basement walls shall be not less than the value specified in table N1102.4 and the requirements of this section. Table N1102.4 (see attached). |
| R 408.31075 | N1102.5 | Building component criteria; fenestration | Slab-on-grade floors | Amend R 408.31075 to read as follows: R 408.31075 Slab-on-grade floors. Rule 1075. N1102.5 Slab-on-grade floors Insulation shall be placed around the perimeter of the floor slab or its supporting foundation as follows: a. From the top edge of the finished perimeter floor slab to below grade when the floor slab is 12 inches or less above or below grade. b. The insulation shall extend downward from the elevation of the top of the slab for a minimum distance of 24 inches or downward to at least the bottom of the slab and then horizontally to the interior of the slab for a minimum total distance of 24 inches. c. The insulation shall be of an approved type. |

Bureau of Construction Codes and Fire Safety
2003 Michigan Uniform Energy Code

| RULE | PROPOSED 2003 SECTION | CURRENT MICHIGAN RULE TITLE | NEW SECTION TITLE | ACTION |
|-------------|----------------------------------|--|--------------------------|---|
| | | | | <p>d. Horizontal insulation extending outside of the foundation wall shall be covered by an approved protective material or by soil that is a minimum of 10 inches in depth.</p> <p>e. The top edge of the insulation installed between the exterior wall and the edge of the interior slab shall be permitted to be cut at a 45-degree angle away from the exterior wall.</p> |
| R 408.31076 | N1102.6 | Building component criteria; roof/ceiling | Crawl space walls | <p>Amend R 408.31076 to read as follows: R 408.31076 Crawl space walls. Rule 1076. N1102.6 Crawl space walls. Insulation shall be placed around perimeter walls forming a crawl space below conditioned spaces or below uninsulated floors as follows:</p> <p>a. Insulation shall extend vertically from the top of the foundation wall to the outside finished ground level.</p> <p>b. The insulation shall extend not less than 24 inches below outside finished ground level or a combined vertical and horizontal distance of 24 inches from the outside finished ground level.</p> <p>c. Horizontal insulation extending outside of the foundation shall be covered by an approved protective material or by soil that is a minimum of 10 inches in depth.</p> <p>d. The insulated crawl space walls are included in the gross wall area of exterior walls from the top of the foundation wall to the outside finished ground level.</p> <p>e. Crawl spaces ventilated in accordance with section R408 of the Michigan residential code shall be protected with a crawl space ground covering consisting of a material that has a rating of 1.0 perm or less.</p> <p>f. An insulated crawl space considered as part of the building envelope and is heated through a positive heat supply is not required to be ventilated during the heating season.</p> |
| R 408.31077 | N1102.7 | Building component criteria; floors over unconditioned space | Air leakage | <p>Amend R 408.31077 to read as follows: R 408.31077 Air leakage. Rule 1077. N1102.7 Air leakage. Exterior joints in the building envelope, including window and door frames, wall and foundation joints, wall panel joints and penetrations, and utility service openings and penetrations in walls, floors, and roof/ceiling assemblies, that separate outdoor ambient conditions or unconditioned portions of the building from</p> |

Bureau of Construction Codes and Fire Safety
2003 Michigan Uniform Energy Code

| RULE | PROPOSED 2003 SECTION | CURRENT MICHIGAN RULE TITLE | NEW SECTION TITLE | ACTION |
|-------------|----------------------------------|---|--------------------------|--|
| | | | | interior spaces that are heated or mechanically cooled shall be caulked, gasketed, weather-stripped or otherwise sealed with an approved material to prevent air leakage. |
| R 408.31078 | N1103.1 | Building component criteria; slab-on-grade floors | Duct insulation | <p>Amend R 408.31078 to read as follows:</p> <p>R 408.31078 Mechanical systems.</p> <p>Rule 1078. N 1103.1 Duct insulation. All portions of air distribution systems shall be installed in accordance with section M1601 of the code and be insulated to an installed R-5 when system components are located within the building but outside of conditioned space, and R-8 when located outside of the building. When located within a building envelope assembly, at least R-8 shall be applied between the duct and that portion of the assembly furthest from conditioned space.</p> |
| | N1103.2 | | Duct sealing | N1103.2 Duct sealing. All ducts shall be sealed in accordance with section M1601.3.1 of the code. |
| | N1103.3 | | Piping insulation | <p>N1103.3 Piping insulation. All mechanical system piping shall be insulated in accordance with table N1103.3.</p> <p>Exception: Piping installed within appliances and equipment or piping serving fluids between 55° F and 120° F.</p> <p>Table 1103.3 (see attached).</p> |

Bureau of Construction Codes and Fire Safety
2003 Michigan Uniform Energy Code

| RULE | PROPOSED 2003 SECTION | CURRENT MICHIGAN RULE TITLE | NEW SECTION TITLE | ACTION |
|-------------|----------------------------------|---|---|--|
| R 408.31079 | N1104.1 | Building component criteria; crawl space walls | Residential design by systems analysis | <p>Amend R 408.31079 to read as follows: R 408.31079 Design by systems analysis. Rule 1079. N1104.1 Residential design by systems analysis. A building designed in accordance with this section will be deemed as complying with the code if the calculated heating energy consumption is not more than that of a standard design building envelope designed in accordance with the code. The use of this compliance method is at the election of the permit applicant. For a proposed alternate building design to be considered similar to the standard design, the proposed alternate building design shall be the same as the standard design for all of the following:</p> <ul style="list-style-type: none"> a. Floor area. b. Thermal envelope area. c. Exterior design conditions. d. Occupancy. e. Climate data. f. Usage operational schedule. |
| | N1104.1.1 | | Standard design building criteria | <p>N1104.1.1 Standard building design criteria. The standard building design criteria shall include the following:</p> <ul style="list-style-type: none"> a. Gas and oil-fired heating source efficiency rating of 78% AFUE. b. An air changes per hour (ACH) rate of 0.80 for the purpose of calculation only. c. For reduced ACH levels, documentation of a post-construction blower-door test shall be provided to the code official. d. A simplified heating degree day (HDD) approach for the appropriate zone, as follows: <ul style="list-style-type: none"> (i) Zone 1 6900 HDD. (ii) Zone 2 7900 HDD. (iii) Zone 3 9300 HDD. <p>Exception: The typical meteorological year (TMY), or its ersatz equivalent, from the national oceanic and atmospheric administration (NOAA) or an approved equivalent, for the closest available location, may be used for the proposed alternative design.</p> |
| | N1104.1.2 | | Analysis method | <p>N1104.1.2 Analysis method. The analysis methodology or calculation tool used for comparison of the heating energy usage of the standard and the proposed alternative building design shall be the same.</p> |

Bureau of Construction Codes and Fire Safety
2003 Michigan Uniform Energy Code

| RULE | PROPOSED 2003 SECTION | CURRENT MICHIGAN RULE TITLE | NEW SECTION TITLE | ACTION |
|-------------|----------------------------------|---|----------------------------------|--|
| | N1104.1.3 | | Analysis report | N1104.1.3 Analysis Report. A heating energy analysis comparison shall be submitted to the code official including the following information: a. The design criteria used to develop the standard design and the proposed alternative design. b. A detailed technical comparison of the two building and system designs. c. The data used in, and resulting from, the comparative analysis to verify that both the analysis and the design meet the criteria of this section and sections N1105.1 through N1106.2. |
| R 408.31080 | --- | Building component criteria; finished lower level walls | --- | Rescind R 408.31080. |
| R 408.31081 | --- | Building component criteria; exposed basement walls | --- | Rescind R 408.31081. |
| R 408.31082 | --- | Air leakage | --- | Rescind R 408.31082. |
| R 408.31083 | --- | Building envelope trade-off options | --- | Rescind R 408.31083. |
| R 408.31084 | N1107.1 | Residential building design by systems analysis and design of buildings utilizing renewable sources | Replacement windows | Amend R 408.31084 to read as follows: R 408.31084 Replacement Windows. Rule 1084. N1107.1 Replacement windows. Replacement windows shall afford at least the same level of performance as the window being replaced. |
| R 408.31085 | N1105.1 | Renewable energy source analysis | Renewable energy source analysis | Amend R 408.31085 to read as follows: R 408.31085. Renewable energy source analysis. Rule 1085. N1105.1 Renewable energy source analysis. A building designed to use a renewable energy sources for all or part of its energy source shall be designed and constructed in compliance with the requirements of this section. Exception: The renewable energy may be excluded from the total heating energy consumption allowed for the building. a. The renewable energy shall be derived from a specific collection, storage, or distribution system. b. The heating energy derived from renewable sources and the reduction in conventional heating energy requirements shall be separately identified from the overall building energy use. c. Supporting documentation on the basis of the performance estimates for |

Bureau of Construction Codes and Fire Safety
2003 Michigan Uniform Energy Code

| RULE | PROPOSED 2003 SECTION | CURRENT MICHIGAN RULE TITLE | NEW SECTION TITLE | ACTION |
|-------------|----------------------------------|--|---|---|
| | | | | the renewable energy sources shall be submitted to the code official. |
| R 408.31086 | N1106.1 | Heating energy analysis comparison report | Heating energy analysis comparison report | <p>Amend R 408.31086 to read as follows: R 408.31086. Energy analysis. Rule 1086. N1106.1 Heating energy analysis comparison report. A heating energy comparison report shall be submitted to the code official to include the following information:</p> <ul style="list-style-type: none"> a. A basic description of the proposed alternate building design and any exceptions to the standard design criteria. b. Abbreviated report form N1106.1. comparing the alternative house design with a standard design house complying with the provisions of this chapter through the systems analysis method. <p>Abbreviated Report Form N1106.1 (see attached)</p> |
| | N1106.1.1 | | Alternative design constants | <p>N1106.1.1 Alternative design constants. The alternative design constants of table N1106.1.1 may be used for the specific site weather data (heating degree days) for the proposed alternative design.</p> <p>Table N1106.1.1 (see attached)</p> |
| | N1106.2 | | Compliance | N1106.2 Compliance. The proposed alternative design shall be determined to be in compliance when the proposed alternative house A/R total (line 14 or line 17 of abbreviated report form N1106.1) is less than or equal to the standard design house (line I or line L of abbreviated report form N1106.1). |
| R 408.31087 | --- | Part 10a | --- | Retain R 408.31087. |
| R 408.31088 | --- | Definitions | --- | Retain R 408.31088. |
| R 408.31089 | --- | Heating, ventilating, and air-conditioning alterations | --- | Retain R 408.31089. |
| R 408.31090 | --- | Administrative requirements | --- | Retain R 408.31090. |
| R 408.31099 | --- | Rescission | --- | Retain R 408.31099. |

Table N1101.2.2 Zones

| Zones | | |
|------------|----------------|-------------|
| 1 | 2 | 3 |
| Allegan | Alcona | Alger |
| Barry | Alpena | Baraga |
| Berrien | Arenac | Chippewa |
| Branch | Bay | Delta |
| Calhoun | Benzie | Dickinson |
| Cass | Charlevoix | Gogebic |
| Clinton | Cheboygan | Houghton |
| Eaton | Clare | Iron |
| Genesee | Crawford | Keweenaw |
| Gratiot | Emmett | Luce |
| Hillsdale | Gladwin | Mackinac |
| Huron | Grand Traverse | Marquette |
| Ingham | Iosco | Menominee |
| Ionia | Isabella | Ontonagon |
| Jackson | Kalkaska | Schoolcraft |
| Kalamazoo | Lake | |
| Kent | Leelanau | |
| Lapeer | Manistee | |
| Lenawee | Mason | |
| Livingston | Mecosta | |
| Macomb | Midland | |
| Monroe | Missaukee | |
| Montcalm | Montmorency | |
| Muskegon | Newaygo | |
| Oakland | Oceana | |
| Ottawa | Ogemaw | |
| Saginaw | Osceola | |
| Sanilac | Oscoda | |
| Shiawassee | Otsego | |
| St. Clair | Presque Isle | |
| St. Joseph | Roscommon | |
| Tuscola | Wexford | |
| Van Buren | | |
| Washtenaw | | |
| Wayne | | |

Table N-1102.4 Building Component Values

| Exterior Enclosure | Zones | | |
|--|-------------------------|----------------------|----------------------|
| | 1 | 2 | 3 |
| Wall Assemblies | R-13 | R-15 | R-19 |
| Fenestration/Openings (total unit values) ¹ | | | |
| Up to and including 15% of gross wall area | R- 1.85 ⁵ | R- 1.85 ⁵ | R- 1.85 ⁵ |
| 15.1% to 25% of the gross wall area | R- 2.5(U value = .4) | | |
| More than 25% of the gross wall area | R – 3.3 (U value = .30) | | |
| Roof/Ceiling Assemblies ² | R-30 | R-38 | R-38 |
| Floors over unconditioned spaces | R –21 | R-30 | R-30 |
| Slab on grade construction ³ | | | |
| Unheated slabs | R-5 | R-5 | R-5 |
| Heated slabs | R-10 | R-10 | R-10 |
| Crawl space walls ⁴ | R-5 | R-5 | R-10 |
| Basement walls | | | |
| Full wall height | R-5 | R-5 | R-10 |
| Top half of wall height | R-10 | R-10 | NP |

¹ Fenestration Units are required to meet this standard for the entire unit.

² Skylight R values are required to meet the fenestration requirements set forth in this table for Fenestration/Openings. Skylights are limited to 10% of the gross roof/ceiling area.

³ See Section N1102.2.1 for additional installation criteria.

⁴ See Section N1102.2.2 for additional installation criteria

⁵ R –1.85 (U value .54)

^{NP} Not permitted.

Table N1103.3 Minimum HVAC Piping Insulation Thicknesses^a

| Piping System Type | Fluid Temperature Range (F) | Insulation Thickness (inches) ^b |
|-------------------------------------|------------------------------|--|
| Heating systems | | |
| Low pressure/temperature | 201-250 | 1.5 |
| Low temperature | 120-200 | 1.0 |
| Steam condensate (for feed water) | Any | 1.5 |
| Cooling Systems | | |
| Chilled water, refrigerant or brine | 40-55 | 0.75 |
| | Below 40 | 1.25 |

^a The pipe insulation thicknesses specified in this table are based on R-values ranging from R-4 to R-4.6 per inch thickness. For materials with an R-value greater than R-4.6, the insulation thickness specified in this table may be reduced as follows:

$$\text{New Minimum Thickness} = \frac{4.6 \times \text{Table Thickness}}{\text{Actual R- Value}}$$

For Thickness with an R-value less than R-4 the minimum thickness shall be increased as follows:

$$\text{New Minimum Thickness} = \frac{4.0 \times \text{Table Thickness}}{\text{Actual R- Value}}$$

^b For piping exposed to outdoor air, increase thickness by 0.5 inch.

Table N1106.1

Alternative Standard Design Constants (1/r) for Systems Analysis Approach

| Heating Degree Days | 6000 – 6499 | 6500 – 6999 | 7000 – 7499 | 7500 – 7999 | 8000 – 8499 | 8500 – 8999 | 9000 + |
|---|----------------|----------------|----------------|----------------|----------------|----------------|--------|
| Roof/Ceiling | 0.038 | 0.036 | 0.034 | 0.032 | 0.030 | 0.030 | 0.030 |
| Gross Wall | 0.20 | 0.16 | 0.15 | 0.15 | 0.14 | 0.14 | 0.13 |
| Foundation/floor Floor over unconditioned space | 0.05 | 0.05 | 0.05 | 0.05 | 0.033 | 0.033 | 0.033 |
| Slab on grade Unheated slab | 0.18 | 0.17 | 0.16 | 0.15 | 0.14 | 0.13 | 0.13 |
| Heated Slab | 0.13 | 0.12 | 0.12 | 0.11 | 0.10 | 0.10 | 0.10 |
| Crawl space | 0.20 | 0.16 | 0.15 | 0.15 | 0.14 | 0.14 | 0.13 |
| Basement wall | 0.20 | 0.16 | 0.15 | 0.15 | 0.14 | 0.14 | 0.13 |